Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GIAN LUIGI RIGOSI and ROBERTO MARZOLA

Appeal No. 2000-0019
Application 08/977,451

HEARD: JANUARY 10, 2002

Before JEFFREY T. SMITH, PAWLIKOWSKI and MOORE Administrative Patent Judges.

MOORE, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1 through 6, all the claims pending in this application. Claims 7 through 16 are presented to this merits panel in a related appeal.[1]

[1] Appeal No. 2000-1805, USSN 09/089,419.

REPRESENTATIVE CLAIM

Claim 1, which is illustrative of the subject matter on appeal, reads as follows:

1. Polyolefin composition comprising (percentages by weight):

1) from 1% to 40% of hollow microspheres;

2) from 60% to 99% of a polyolefin composition comprising (percentages by weight):

a) from 25% to 95% of polypropylene homopolymer, polyethylene homopolymer, or a propylene/ethylene, propylene/C_4-C_{10} a – olefin, or propylene/ethylene/C_4-C_{10} a – olefin crystalline random copolymer, or mixtures thereof;

b) from 0% to 70% of an ethylene-propylene or ethylene/C_4-C_{10} a – olefin elastomeric copolymer, optionally containing minor quantities of a diene;

c) from 0.5% to 10% of polypropylene or polyethylene modified with polar groups in quantities ranging from 0.1 to 10%;

d) from 0% to 10% of titanium dioxide;

said polyolefin composition 2) having MFR (ASTM D-1238, condition L) from 2 to 150 g/10 min., and being in powder form with not more than 3% of the granules having a diameter greater than 600 micrometers, and wherein said microspheres have not been treated with a polyolefin chain degradation agent prior to contact with said polyolefin composition.

THE REFERENCES

In rejecting the appealed claims under 35 U.S.C. §103(a) as obvious, the Examiner relies on the following references:

Coleman-Kammula et al. (Coleman) (European Patent Application)	0,473,215 A1	Mar. 4, 1992
Marzola et al. (Marzola)[2] (European Patent Application)	0,603,906A1	Jun. 29, 1994

[2] This reference has Roberto Marzola as an inventor in common with the present patent application.

DELIBERATIONS

Our deliberations in this matter have included evaluation and review of the following materials:

(1) the instant specification, including all of the claims on appeal;

(2) the Appellants' Brief on Appeal (Paper No. 18) and the Appellants' Reply Brief (Paper No. 21);

(3) the Examiner's Answer (Paper No. 19);

(4) the above-cited prior art references; and

(5) the application's prosecution history.

On consideration of the entire record, including the above-listed materials, we reverse the Examiner's rejections under §112, and affirm the Examiner's rejection under §103(a).

DISCUSSION

The Invention

The Appellants' invention as claimed relates to a polyolefin composition which has 1-40% hollow microspheres, and 60-99% of a specified polyolefin composition, the hollow microspheres not being treated with a polyolefin chain degradation agent prior to contact with the polyolefin composition. The composition is said to be useful in the coating of metallic surfaces by flame-gun spraying.

The Rejections

§112, First Paragraph

Claims 1-6 stand rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a manner as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Examiner states that claim 1 includes the limitation that the microspheres have not been treated with a polyolefin chain degradation agent, and that the limitation is unsupported in the specification (Examiner's Answer, page 3, lines 7 – 10). The primary issues with this added limitation, in the Examiner's view, are that the chain degradation agents are mentioned only by reference to a foreign application, and one of skill in the art would have to perform undue experimentation when attempting to select or exclude components having the desired properties.

The §112, first paragraph rejection, essentially stands or falls upon the issue of whether the limitation of "wherein said microspheres have not been treated with a polyolefin chain degradation agent prior to contact with said polyolefin composition" is supported within the as-filed specification.

The adequate written description requirement of 35 U.S.C. Section 112, Para. 1, provides that:

> [t]he specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

An issue arising under the written description requirement of 35 U.S.C. § 112, first paragraph, is a question of fact. See Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1116 (Fed. Cir. 1991).

The adequate written description requirement, which is distinct from the enablement and best mode requirements, serves "to ensure that the inventor had possession, as of the filing date of the application relied on, of the specific subject matter later claimed by him; how the specification accomplishes this is not material." In re Wertheim, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). In order to meet the adequate written description requirement, the applicant does not have to utilize any particular form of disclosure to describe the subject matter claimed, but "the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (citation omitted).

Put another way, "the applicant must . . . convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention." Vas-Cath, 935 F.2d at 1563-64, 19 USPQ2d at 1117. " Precisely how close the original description must come to comply with the description requirement of section 112 must be determined on a case-by-case basis." Eiselstein v. Frank, 52 F.3d 1035, 1039, 34 USPQ2d 1467, 1470 (Fed. Cir. 1995) (quoting Vas-Cath, 935 F.2d at 1561, 19 USPQ2d at 1116).

In reviewing the language of claim 1 we note that the phrase the “microspheres have not been treated “ finds support in the specification at page 3, lines 2 – 17 and page 6, lines 7 –8. On page 3, the benefits of the invention are touted as “having the

advantage of not requiring any treatment of the microspheres in order to obtain coatings with good physical-mechanical properties" (lines 14-17). On page 6, the invention is said to be superior as "one can obtain finished coating[s] with good physical-mechanical properties without using complicated apparatus[es] or having to take burdensome measures, such as pretreating the hallow [sic] microspheres" (lines 4 – 8). Thus, we find that the limitation of untreated microspheres is adequately described in the as-filed specification.

We therefore reverse this rejection.

§112, Second Paragraph

Claims 1 – 6 stand rejected under 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps.

More specifically, the Examiner states that the step of the "treatment not applied to the microspheres prior to contact with the polyolefin composition" is missing. (Examiner's Answer, page 5, lines 15-16). The Examiner's primary concern is that no boundaries have been set for excluding an undefined process, which "constitutes a clear failure to interrelate essential elements" (Examiner's Answer, page 6, lines 3-4).

The Appellants state that they are under no obligation to provide "any disclosure regarding the means by which such microspheres could be treated with a polyolefin chain degradation agent, as such treatment is not within the scope of the claimed invention" (Appeal Brief, page 8, lines 17 – 20).

We agree with the Appellants. It is not necessary that the claims recite a "non-step" of avoidance in detail. While we understand the Examiner's concern about setting

limits to the claim (Examiner's Answer, page 6, line 13), those limits have been adequately established such that one of skill in the art is reasonably apprised of the scope of the invention. The Appellants have admitted that "The Claimed Subject Matter Specifically Excludes Microspheres Which Have Been Treated With a Polyolefin Chain Degradation Agent" (Appeal Brief, Heading, Section 2, Page 8) (Emphasis in Original). Any polyolefin chain degradation agent is excluded from the claimed subject matter and a step of non-treatment need not be included. We therefore likewise reverse this rejection.

§103 Rejection – Prima Facie Case

Claims 1-6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Marzola taken with Coleman.

Marzola is said to have taught polyolefin compositions within claim 1 suitable for coating metal articles, while Coleman is said to have taught adding hollow glass microspheres to polyolefin insulating compositions to accurately control physical properties. The Examiner thus concludes it would have been obvious to have added hollow microspheres to the polyolefin composition of Marzola in the expectation of affording control of physical properties (Examiner's Answer, page 7, lines 5 – 14).

The Appellants challenge the prima facie case of obviousness, stating that there is no motivation in the prior art to combine the cited references. Marzola, it is said, taught the use of microspheres which have been preferably treated with polyolefin chain degradation agent prior to contacting the microspheres with the olefin polymer (Appeal Brief, page 11, lines 10-12). This preference is amplified, it is said, by the example showing non-treated microspheres as being broken in substantial proportion during

compounding or extrusion when used in combination with a base polypropylene having a low melt flow index. The problem can be overcome with high melt flow index material, but the resulting material is said to have "unsuitable mechanical properties for flowline insulation" citing Coleman, page 2, lines 23-31 (Appeal Brief, page 11, lines 17-25).

The Examiner points to Coleman's teaching that the pretreatment of the microspheres is optional and is preferred for vigorous applications to accurately control mechanical properties, noting that "The total disclosure of the reference clearly encompasses using treated and untreated microspheres and the advantage of the treatment." (Examiner's Answer, page 8, lines 9-10). The Examiner also notes that the present claims contain no limitation to "rigorous applications" (Examiner's Answer, page 8, line11).[3]

In the Reply Brief, the Appellants sum up their position on the prima facie case of obviousness thusly:

> …the cited combination …. fails to raise a prima facie case of obviousness because (1) the prior art contains no motivation to combine the features of these references as suggested by the Patent Office, and (2) one of ordinary skill would not have a reasonable expectation of success that the claimed subject composition would work for its intended purpose."

(Reply Brief, page 3, lines 6-12).

We disagree. The Appellants have overly narrowly read particular segments of the Coleman and Marzola references.

The test for obviousness involves consideration of what the combined teachings, as opposed to the individual teachings, of the references would have suggested to

those of ordinary skill in the art. In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

In Marzola, we agree with the Examiner that the claimed polyolefin composition was clearly described (See, e.g. page 2, column 2, line 29 – page 3, column 1, line 19). Marzola also taught to obtain a desired melt flow index, it was common to add a polyolefin modifier, e.g. a chain scission agent, as discussed at page 3, column 2, lines 11-19. The delivery of this agent is by addition to the polyolefin melt in Marzola.

Coleman, on the other hand, taught the incorporation of glass hollow microspheres, including on some of them a chain scission agent, to give a composition which could be applied in "rigorous" applications and be closely controlled (Page 2, lines 34-38). Coleman also taught the desirability of incorporating a chain scission agent, which "acts to form free radicals in then polyolefin melt, and which is carried to the polyolefin by the microspheres, [for] accurate control of mechanical properties" (Coleman, page 2, lines 50-52).

In sum, both cited references taught the desirability of incorporating a chain scission agent, one by inclusion in the polyolefin melt, the other optionally on the glass microspheres, to one of ordinary skill in the art at the time the invention was made. Page 8 of Coleman contains a discussion of Example Set 2 (Page 8) in which a polypropylene homopolymer is compounded with uncoated microspheres and also with

[3] The Examiner has also stated that "it has been held obvious to leave out a component or step in a process if one is willing to accept the loss of its function," citing In re Wilson, 377 F.2d 1014, 153 USPQ 740 (CCPA 1967).

coated microspheres. In discussing the function of the chain scission agent, it is stated that:

> …the use of a small amount of peroxide [a chain scission agent] and maleic anhydride [a functionalizing agent] causes substantial changes in the properties of the composite material. Tensile strength is substantially enhanced whilst a Melt Flow Index suitable for pipe extrusion is maintained. Adhesion between microspheres and polymer is believed to be improved thereby increasing creep resistance

(Page 8, lines 34-37).

We agree that it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have utilized the uncoated microspheres of Coleman in the polymer of Marzola.

The crux of the issue is whether the negative portions of the teachings found at Coleman, page 2, lines 23 – 31 and page 5, lines 51- page 6, line 3 are sufficient to overcome the remainder of the teachings in the references, such that the prima facie case of obviousness cannot stand.

The Appellants state that "[o]ne of ordinary skill in the art would have no motivation to ignore this teaching [the negative teachings of uncoated microspheres] by adding untreated microspheres to a polyolefin regardless of whether it contains polar groups. Instead, one of ordinary skill in the art would understand from Europe '215 [Coleman] that the chain scission agent permits accurate control of mechanical properties such as yield strength, extensibility to break and creep resistance" (Reply Brief, page 6, lines 2-8). The Appellants further state that one of ordinary skill in the art would have no reasonable expectation of success in making the claimed composition, relying on Coleman's negative teachings.

We disagree with Appellants' interpretation of the reference. The negative teachings, while important, are only a portion of the art available to the person of ordinary skill in the art. We remind Appellants that the test for obviousness involves consideration of what the combined teachings, as opposed to the individual teachings, or portions, of the references would suggest to those of ordinary skill in the art. Young, 927 F.2d at 591, 18 USPQ2d at 1091 (Fed. Cir. 1991); Keller, 642 F.2d at 425, 208 USPQ at 881.

The Coleman reference taught that uncoated microspheres could be compounded into a polyolefin composition to control certain physical properties (although the results are stated to be less than optimal for rigorous applications), the combined references also taught that a chain scission agent can be added to control certain physical properties. Marzola additionally teaches adding the chain scission agent in the polyolefin melt.[4]

One of ordinary skill in the art would have recognized that there are two locations in which the chain scission agent could be incorporated into a composition as claimed, in the polyolefin or added into another component such as the microspheres. Marzola taught one method, Coleman taught coated or uncoated microspheres. Coleman's failure was not necessarily attributable to a placement of the chain scission agent in a particular location; rather, it was apparently because no chain scission agent was present at all during compounding and extrusion. Marzola taught one of skill in the art to place the agent in the melt, which would have led one of ordinary skill in the art to a

[4] The present application claims are open-ended and do not exclude the addition of the chain scission agent in the polyolefin melt.

reasonable expectation of success when compounding and extruding the microspheres and polyolefin.

We therefore find that the Examiner has established a prima facie case of obviousness.

Rebuttal Evidence

The Appellants point to results contained in the specification that purportedly render claims 1-6 unobvious (Appeal Brief, Page 13, section E).

It is well known that evidence of unobviousness must be properly considered and the entire matter reweighed (see, e.g. In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 688 (Fed. Cir. 1986) (declaration evidence). However, whether evidence shows unexpected results is a question of fact and party asserting unexpected results has the burden of proving that the results are unexpected. In re Geisler, 116 F.3d 1465, 1469-70, 43 USPQ2d 1362, 1364-5 (Fed. Cir. 1997).

Put another way, one relying on data to establish has a burden of establishing that unexpected results are actually obtained and the significance of those results to one having ordinary skill in the art. Cf. In re Klosak, 455 F.2d 1077, 1080, 173 USPQ 14, 16 (CCPA 1972) (inventor must show that the results claimed to obtained with a claimed invention are actually obtained with the invention).

Finally, objective evidence of non-obviousness must be commensurate in scope with the claims that the evidence is offered to support. In re Clemens, 622 F.2d 1029, 1035, 206 USPQ 289, 296 (CCPA 1980); In re Greenfield, 571 F.2d 1185, 1189, 197 USPQ 227, 230 (CCPA 1978); In re Lindner, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972); In re Tiffin, 448 F.2d 791, 792, 171 USPQ 294, 294 (CCPA 1971).

The Appellants' arguments do not point us to any particular place in the specification where these beneficial and unexpected results may be found. Instead, without citation they discuss the failures of Coleman and state that the Appellants' untreated microspheres do not suffer from excessive breakage even when incorporated into a polyolefin composition having a melt flow rate of 10 grams/10 min (Appeal Brief, page 13).

Initially, we note that this single data point is not commensurate in scope with the claims (which recite a Melt Flow Rate of from 2 to 150 g/10 min).

Secondly, the specification states: "From the density values shown in Table 1, one can conclude that the majority of the glass spheres did not break" (Specification, Page 22, lines 12-13). One of the purported drawbacks of Coleman is that "a substantial proportion" of the microspheres were broken when untreated (Coleman, page 2, lines 29-30, and Compositions A and D). We have no way of comparing the "substantial proportion" of Coleman with the "majority" of the instant specification, and therefore find that the Appellants have not met the burden of establishing the significance of these results to one having ordinary skill in the art.

We have additionally reviewed the examples in the Specification, page 20, line 3 – page 26, line 2 to see if any additional significance could be gleaned from the comparative examples. We are unable to do so, as we have been provided with no guidance as to why the oxidation induction time results are unexpected when compared to the closest prior art.

We therefore affirm the rejection of claims 1-6 under 35 U.S.C. §103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. 1.136(a).

AFFIRMED

JEFFREY T. SMITH Administrative Patent Judge	)
BEVERLY A. PAWLIKOWSKI Administrative Patent Judge	) BOARD OF PATENT) APPEALS AND) INTERFERENCES
JAMES T. MOORE Administrative Patent Judge	)

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